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EPA MIDDLEFIELD-ELLIS-WHISMAN (MEW) STUDY AREA
SUPERFUND UPDATE

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY • REGION 9 • NOVEMBER 1999

Construction Activities Completed
Redevelopment Continues

The U.S. Environmental Protection Agency (EPA) announces the completion of construction for the cleanup remedies at the Middlefield-Ellis-Whisman (MEW) Study Area, in Mountain View, California.

The MEW Study Area includes facilities owned or operated by eleven companies, including three Superfund sites: Fairchild Semiconductor Corporation, Intel Corporation and Raytheon Company (see Figure 1, page 3).

This fact sheet highlights the following key accomplishments:

- Startup of two Regional Groundwater Remediation Program treatment systems
- Soil cleanup completed at nine Responsible Party properties (five Fairchild/Schlumberger facilities, one Intel facility, one NEC facility, one GS/MSA facility, and one Intel/Raytheon facility)
- Ongoing groundwater cleanup at Raytheon, Intel, Fairchild, NEC, Siemens/Sobrato, and GS/MSA facilities
- Completion of new office developments along Ellis Street, Middlefield Road and Whisman Avenue
- New office developments on Ellis Street and Whisman Avenue planned for 2000

SITE BACKGROUND

Past investigations at the MEW Study Area revealed the presence of volatile organic compounds (VOCs) in the soil and **groundwater**.* The predominant chemical detected in soil and groundwater, trichloroethene (TCE), has been found in the uppermost, shallow aquifer at concentrations of up to 1,000 parts per million (**ppm**) within the areas bounded by the **slurry walls**.

The contaminated groundwater plume at MEW has migrated onto Moffett Federal Airfield. EPA and the U.S. Navy have entered into a separate agreement for the investigation and cleanup of Moffett Federal Airfield. NASA has also performed additional soil and groundwater investigations on Moffett Field and is conducting a portion of the regional groundwater cleanup.

** Terms in bold are found in the glossary on page 5.*

EPA-APPROVED CLEANUP REMEDIES

The groundwater cleanup method uses wells to pump out contaminated groundwater and treat it using **air strippers** or **liquid-phase granular activated carbon**. The soil cleanup method uses **soil vapor extraction** which treats the vapors with granular-activated carbon, and/or excavation of the contaminated soil and treatment by **aeration**. The cleanup standard for TCE in groundwater is 0.005 ppm both inside and outside of the

Regional Groundwater Remediation Program South of US Highway 101 in Operation Since January 1998.

slurry walls. The cleanup standard for TCE in soils is 1 ppm inside the slurry walls, and 0.5 ppm outside of the slurry walls.

STATUS OF CLEANUP ACTIVITIES

The individual companies responsible for the contamination impacting the groundwater have been operating individual groundwater treatment systems, known as source control systems, to clean up contamination sources at their facilities.

In addition, Intel and Raytheon have completed construction of two regional groundwater treatment systems which pump and treat groundwater in areas not captured by the individual source control systems. Companies within the MEW Study Area are responsible for long-term operation and maintenance of the regional system.

To date, the combined systems have removed over 48,000 pounds of VOCs from groundwater at the MEW Study Area.

The following pages summarize the status of remediation and redevelopment activities for the regional groundwater program and the individual facilities (by company and facility address). Figure 2, page 4, shows the location of the source control recovery wells, regional recovery wells, individual groundwater treatment facilities, and recent TCE concentrations in groundwater.

REGIONAL GROUNDWATER REMEDIATION PROGRAM

SOUTH OF U.S. HIGHWAY 101

- Design and construction of regional recovery wells and groundwater treatment system completed
- Startup of groundwater treatment system in January, 1998

NORTH OF U.S. HIGHWAY 101

- Design and construction of regional recovery wells and groundwater treatment system completed
- Startup of groundwater treatment system in October, 1998

FACILITY-SPECIFIC WORK

Soil cleanup is completed or in progress at all facilities. Groundwater cleanup is underway at all facilities.

FAIRCHILD / SCHLUMBERGER 515 & 545 N. WHISMAN, 313 FAIRCHILD DR.
(Former Buildings 1 through 4)

- Former Buildings 1, 2, 3, and 4 demolished
- Soil cleanup by excavation completed
- Deep soil contamination being cleaned up by groundwater treatment system due to rise in groundwater table
- Groundwater cleanup by extraction and treatment, begun in 1985, continues
- Slurry wall, installed in 1986, continues to contain onsite chemicals in uppermost aquifer
- Nokia occupies new office development at former buildings 3 and 4
- New office development planned at former buildings 1 and 2

644 NATIONAL AVENUE
(Former Building 18)

- Soil cleanup by excavation completed
- Groundwater extraction well on-site, operational since 1996, continues
- Regional groundwater treatment plant constructed at this location

401 NATIONAL AVENUE
(Former Building 9)

- Soil cleanup by soil vapor extraction and soil excavation inside and outside of slurry wall completed
- Groundwater cleanup by groundwater extraction and treatment inside of slurry wall, begun in 1985, continues
- Slurry wall, installed in 1986, continues to contain onsite chemicals in uppermost aquifer
- Groundwater extraction and treatment system outside of slurry wall, operational since 1996, continues
- Unisil continues to occupy the building

464 ELLIS STREET
(Former Building 20)

- Former Building 20 demolished
- Soil cleanup by soil vapor extraction completed
- Groundwater cleanup by groundwater extraction and treatment, operational since 1996, continues
- Netscape occupies new office development

369 AND 441 N. WHISMAN ROAD
(Former Buildings 13, 19, and 23)

- Former Buildings 13, 19, and 23 demolished
- Soil cleanup by soil vapor extraction and excavation completed inside and outside of slurry walls
- Groundwater cleanup by groundwater extraction and treatment, begun in 1985, continues
- Slurry wall, installed in 1986, continues to contain onsite chemicals in uppermost aquifer
- Netscape occupies new office development

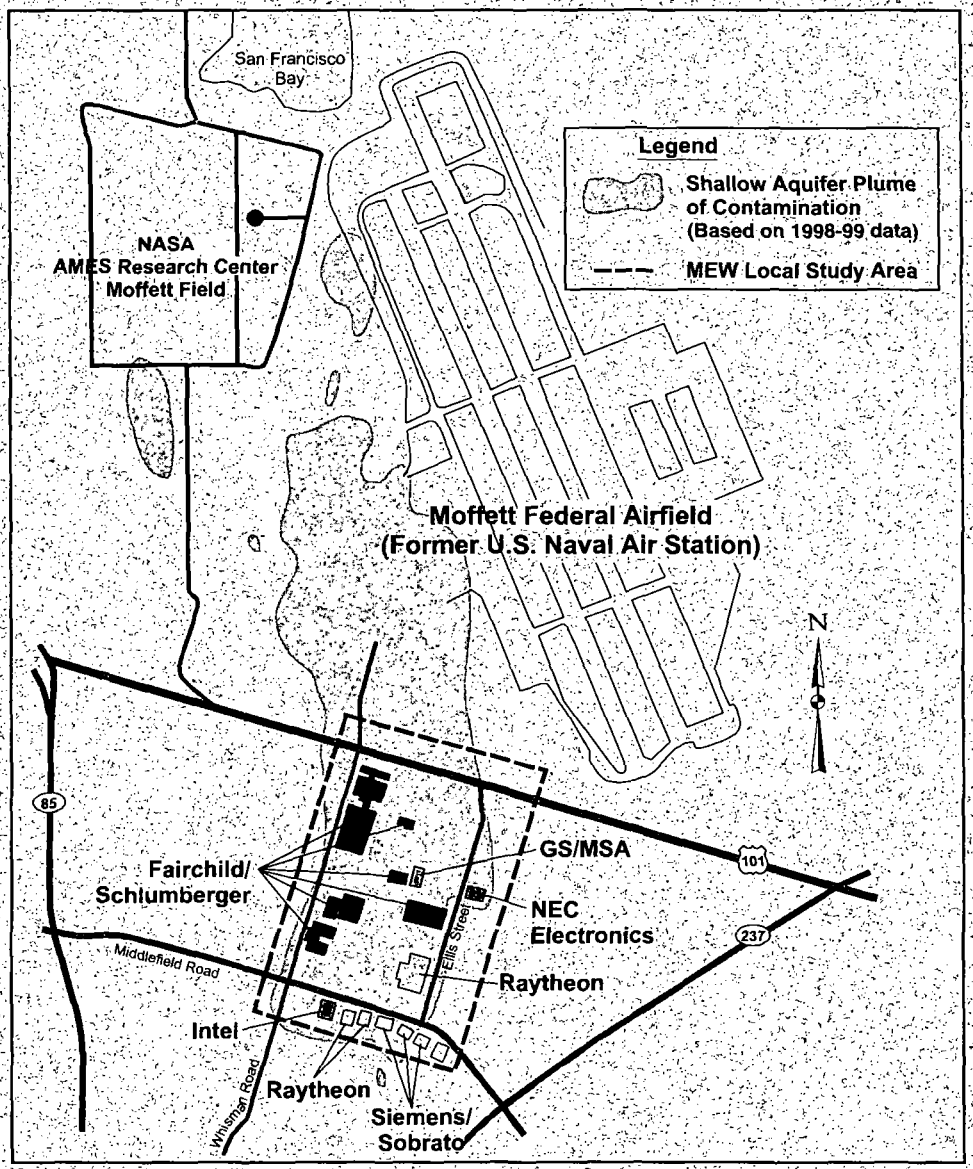


Figure 1: MEW Regional Study Area

General Semiconductor / Mitsubishi Silicon America (GS/MSA) 405 National Avenue

- Soil cleanup by soil vapor extraction completed
- Groundwater cleanup by groundwater extraction and treatment, begun in 1996, continues

Intel Corporation 365 E. Middlefield (Lot 3)

- Soil cleanup by excavation completed
- Groundwater cleanup by extraction and treatment, begun in 1986, continues
- Groundwater treatment system relocated to back of property in 1998
- Business occupies remodeled building

Raytheon Company 350 Ellis Street

- Soil cleanup by soil vapor extraction operational since 1996
- Soil cleanup complete for areas outside of slurry wall and some areas within the slurry wall
- Groundwater cleanup by extraction continues for areas inside of slurry wall since 1986, and outside of slurry wall since 1996
- Slurry wall continues to contain onsite chemicals in upper three aquifers
- Fairchild Semiconductor currently occupies building which is scheduled for demolition in 2000
- Veritas Software plans to construct and occupy new office buildings

415 E. Middlefield (Lots 4 and 5)

- Soil cleanup by excavation completed
- Deep soil contamination being cleaned up by groundwater treatment system at Lot 3 due to rise in groundwater table
- New office building completed at Lot 4
- Netscape occupies building on Lot 5

NEC Electronics 501 Ellis Street

- Soil cleanup by excavation completed
- Groundwater cleanup by groundwater extraction and treatment operational since October 1997
- Prio occupies the building

SIEMENS MICROELECTRONICS INC. / SOBRATO DEVELOPMENT COMPANIES 455, 485/487, AND 501/505 E. MIDDLEFIELD ROAD

- Groundwater extraction and treatment operational since August 1997
- Soil cleanup by soil vapor extraction and **air sparging** operated intermittently since August 1997 due to rise in groundwater
- Netscape occupies remodeled buildings

TECHNICAL ASSISTANCE GRANT COMPLETED

The U.S. Environmental Protection Agency's Technical Assistance Grant to the Silicon Valley Toxics Coalition has been completed. The purpose of the $100,000 federal grant was to hire a technical specialist to help the community understand the proposed cleanup plan for the MEW Study Area, so that they could become involved in the decision-making process.

This specialist reviewed the technical documents, provided written and oral reports to the Silicon Valley Toxics Coalition, and expressed professional opinions on various aspects of the proposed remedy. The group shared this information with the general public, EPA and representatives of the responsible parties through various meetings, and provided input into the cleanup process.

With the completion of the remedy and the startup of operations, the purpose of the grant has been fulfilled. For more

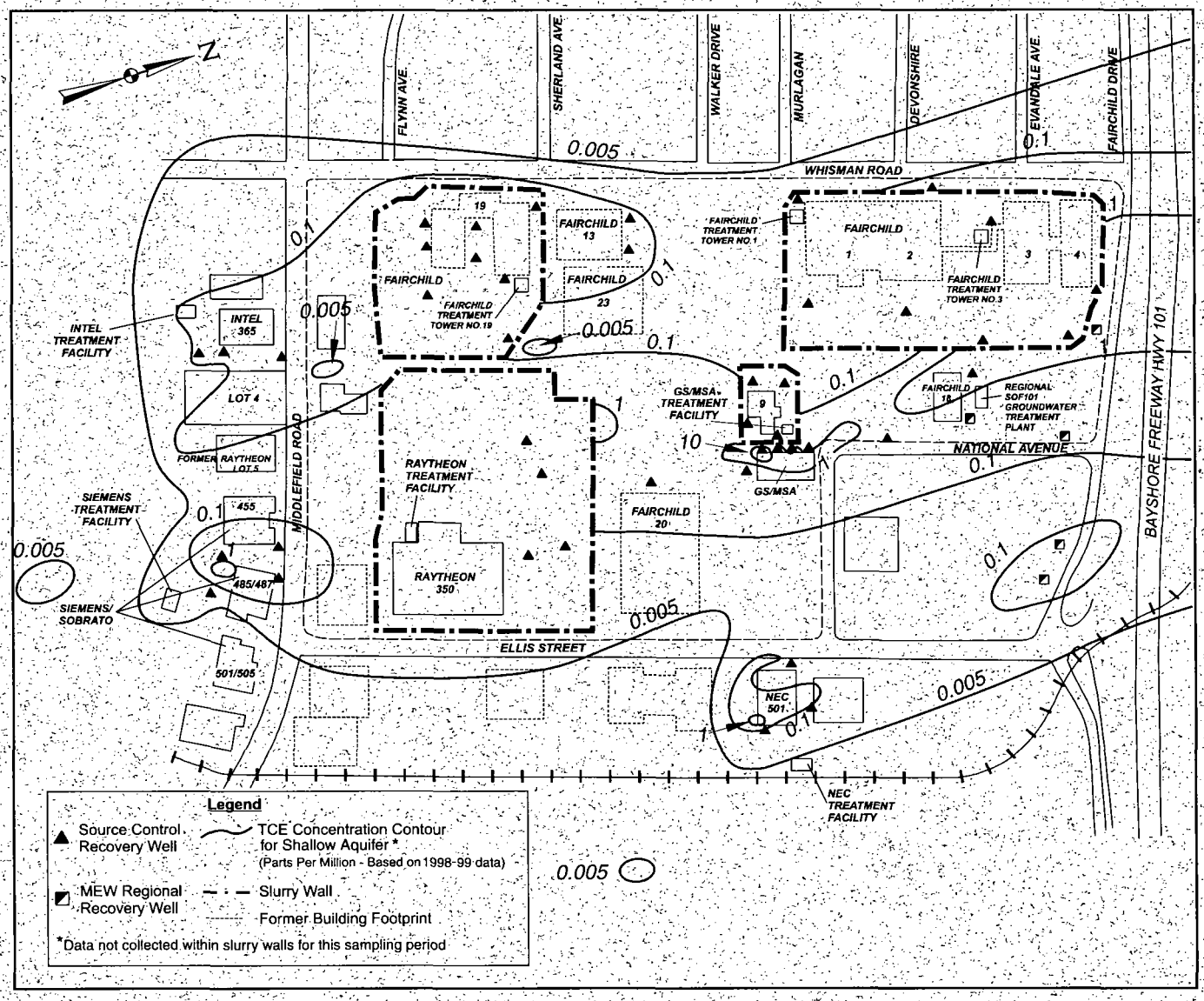


Figure 2: Facility-Specific and Regional Groundwater Remediation Program (South of Hwy. 101)

information about work performed by the Silicon Valley Toxics Coalition under this grant, contact Ted Smith of the Coalition at 760 North First Street, San Jose, CA, 95112, (408) 287-6707.

NEXT STEPS

- EPA oversight and evaluation of the groundwater treatment systems continues
- Soil cleanup at the Raytheon and Siemens Microelectronics Inc./ Sobrato Development Companies sites continues
- EPA continues working with developers of new office buildings to ensure minimal impact on groundwater treatment systems

GLOSSARY

Aeration: The process of exposing contaminated soils to the air so that the volatile contaminants in the soil will evaporate into the air.

Air Sparging: The process of removing contaminants from the soil by forcing air into the soil, which causes the contaminants to turn to vapors, where they can be drawn out of the soil.

Air Stripping: The process of removing volatile organic compounds from contaminated water by forcing air through the water to separate the chemical from the liquid. The volatile chemicals evaporate when exposed to the air, leaving the water with substantially reduced contaminant levels.

Groundwater: Underground water that fills the pores between particles of soil, sand, gravel or rock to the point where the material is saturated. Where groundwater occurs in significant quantity, it can be used as a water supply.

Liquid-Phase Granular Activated Carbon: The process of removing organic contaminants by passing them through carbon-covered filters, causing the compounds to adhere to the carbon.

Parts per million (ppm): PPM is a unit of concentration. For example, one drop of trichloroethylene (TCE), in 2,600 gallons of water equals 1 ppm TCE.

Soil Vapor Extraction: The process of removing contaminants from the soil by capturing the vapors in between the soil particles using vacuum pressure.

Slurry Wall: A barrier that is installed underground to contain contaminated soils and groundwater at the site.

Regional Groundwater Program North of US Highway 101 in Operation Since October 1998.

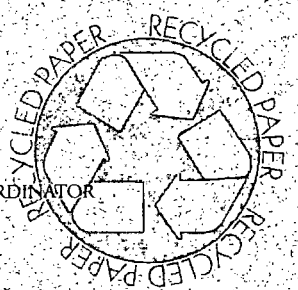
FOR FURTHER INFORMATION

Copies of site-related documents and an index of EPA's Administrative Record are available at the following locations:

MOUNTAIN VIEW PUBLIC LIBRARY
585 Franklin Street
Mountain View, CA 94041
(650) 903-6887

U.S. EPA SUPERFUND RECORDS CENTER
95 Hawthorne Street, Suite 403S
San Francisco, CA 94105
(415) 536-2000

If you have questions, or would like more information on the MEW Study Area, please contact:



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